

# Port and Maritime Sector: Key Developments and Challenges

 Program

## SIGA2 Conference

7-9 May 2025, Antwerp



### WCTRS SIGA2 Conference 2025 (SIGA2-2025)

May 07 09, 2025 CEST | <https://www.uantwerpen.be/en/conferences/siga2-conference-2025/> ↗

Thu, May 08 2025 CEST

08:00 - 08:30

**Presentation Session: Registration**

Dürer, Hof van Liere,  
Prinsstraat 13,  
Antwerp ·

<https://maps.app.goo.gl/R732VyBtjjpgTN8M9>

08:30 - 09:00

**Presentation Session: Conference opening**

Chair: Thierry Vanelslander

"Conference opening". Thierry Vanelslander

09:00 - 10:15

**Presentation Session: Sustainable Port Design & Green Technologies**

Chair: Jeffrey Willems

"Port sustainability: exploring the trade-offs in the turbulent times". Ceren Altuntas Vural

"Towards a SMART Sustainable inland port ". Ioanna Kourounioti

"Toward more sustainable container terminals, A total cost of ownership analysis of green container handling initiatives". Wouter Schmidt

"Towards the design of maritime sustainable terminals". Stefano Ricci

09:00 - 10:15

**Presentation Session: Digital Twins in Maritime Design & Operations**

Chair: Juan Manuel Pulido Guzman

"From DT-based retrofit to new build: a design framework mapping the challenges and considerations of emission reduction through data-driven ship design ". Austin Kana

"Economic Quantification Framework for Digital Twin in the Maritime Ecosystem: Life Cycle Costs and Benefits". Stephen Rakoma

"Conceptualising a Digital Twin Framework for Port Authorities: A Use Case-Based Study at the Port of Barcelona". Chiara Saragani

"A digital twin driven zero emission ship design method". Ben Noble

---

**09:00 - 10:15      Presentation Session: Maritime Training, Simulation & Education**

Chair: SUE ZHAO

"The Impact and Importance of Serious Games in Maritime Education: An Empirical application ". Charilaos Christodoulou Raftis

"PVL.one: Employing constructivist approach in vocational education and training using simulation and gamification to improve the economic and environmental efficiency of maritime international transport operations". Yassir Lamnadi

---

**09:00 - 10:15      Presentation Session: Inland Waterway Transport (IWT) Optimization & Bottlenecks**

Chair: Marie Cryns

"MODELING THE AUTONOMUS SHIPPING DIFFUSION: AN AGENT-BASED MODELLING (ABM)". Dhaneswara Al Amien

"Cost-Benefit Analysis for the Economic Evaluation of Resolving Nautical Bottlenecks on Inland Waterways: A Case Study Using Real-World Data". Bianca Duldner-Borca

"Multi-objective optimization for the design of electrified inland water transportation network". Virgilio Ma Jr Ramos

"Tackling inland barge congestion in European seaports with Modular Mobile Terminals: the Antwerp case". Cyril Alias

---

**10:15 - 10:45      Presentation Session: Refreshment break**

---

**10:45 - 12:00      Presentation Session: Port Governance and Reform in Developing Nations & Brazil**

Chair: Felipe Bedoya-Maya

"Brazilian Port Reform: interplays of Federal and Local Jurisdictions in Port Management Competencies Delegation ". Cassia Galvao

"10 Years of Port Reform Law in Brazil: reflections, implications and the Future of Port Development ". Cassia Galvao

"Enhancing Board Governance in Port Authorities: the case of Brazil". JONAS MENDES  
CONSTANTE

"An Institutional Appraisal of Nigeria's Maritime Port Reforms and the Implications for African and Global Port Reforms". Adekola Oyenuga

---

**10:45 - 12:00**

**Presentation Session: Economic Impact Analysis & Modelling for Ports**

Chair: Wouter Schmidt

"A System Dynamics Approach to Long-Term Forecasting of Container Demand". Reza Izadbakhsh

"Socioeconomic Impact Assessment of Tourist Ports: The Case of Corfu Port". Dimitrios Dimitriou

"Economic effects of ports; affected by omitted variable bias?". Mark Lijesen

"The potential of Zipf's law as a tool for optimising container systems in European ports".  
Karolina A. Krośnicka

---

**10:45 - 12:00**

**Presentation Session: GHG Emissions Regulation & Compliance in Shipping**

Chair: Dimitrios Georgoudakis

"Economic impact of EU-emission initiatives for alternative fuel transition in Irish maritime industry. ". Alina Kovalenko

"Evaluating the Impact of Greening on Newbuilding Prices of Containerships". Dimitrios Georgoudakis

"Combined impacts of reducing GHG emissions in the shipping field ". Junya Otani

"2023 International Maritime Organization (IMO) Strategy on Reduction of greenhouse gas (GHG) Emissions from Ships and EU Fit-for-55: contradictory or supplementary for shipping decarbonization? ". Anastasia Christodoulou

---

**10:45 - 12:00**

**Presentation Session: ESG & Sustainability Reporting in Shipping & Logistics**

Chair: Andrii Galkin

"ESG Priorities in European Tanker Shipping: A Comparative Analysis". Eline De Belser

"Emission calculation model for small and medium sized road operators ". Joost Hintjens

"Current state of carbon emissions in European supply chains: Insights based on CDP disclosures". Rene Bauer

"Risk, Return and Impact: Sustainability reporting in the shipping industry". Andreas Andrikopoulos

---

**12:00 - 13:00**

**Presentation Session: Lunch break**

---

**13:00 - 14:15**

**Presentation Session: Hydrogen & Ammonia Fuel Hubs in Ports**

Chair: Joost Hintjens

"Drivers, barriers, and challenges for the development of a hydrogen-based fuel hub in the Port of Gothenburg". Julia Hansson

"Evaluating Hydrogen and Ammonia Imports: Surface Area and Cost Implications for European Ports – A Case Study". Noemi Van Meir

"Challenges and possibilities for hydrogen-based fuels infrastructure and pathways linked to ports ". Julia Hansson

---

**13:00 - 14:15**

**Presentation Session: Port-Hinterland Connectivity & Mode Choice Analysis**

Chair: Mylena Cristine Rodrigues de Jesus

"Assessing modal shift potential to ease port-city tensions: A case study for the port of Antwerp based on truck GPS data". Emma Ceulemans

"Methods and Models for Freight Mode Choice in Port-Hinterland Connections: A Review". Katelyn Tahaney

"Public and Private Perceptions of Sea Freight intermodal competitiveness". Fares Abu Dayyeh

"Spatial analysis of hinterland for container terminals". Marco Petrelli

---

**13:00 - 14:15**

**Presentation Session: Container Shipping Market Dynamics & Disruptions**

Chair: Mandi Jiang

"Ultra Large Container Carriers (ULCC) Strategies: Polarisation in Progress (2020, 2022 and 2024)". OLIVIER JOLY

"Assessing disruption impacts: concentration measures in the container shipping market". Daniela Tocchi

"From disruptions to continuity: understanding the effect of global disruptions on container shipping trade". Yasmine Rashed

"The TEU - GDP multiplier, a broken relationship or here to stay? ". Jochen MAES

---

**13:00 - 14:15**

**Presentation Session: Inland Waterway Transport (IWT) Optimization & Bottlenecks**

Chair: Charilaos Christodoulou Raftis

"Identifying research gaps around inland ports facing automated inland waterway transportation". Cyril Alias

"Evaluating Policy Measures for Achieving Climate Neutrality in Inland Navigation". Denise Beil

"The acceptance of new inland waterway transport technologies in peripheral European countries". Marie Cryns

"Developing a Framework for Successful International Technology Transfer in Inland Navigation". Emilia O'Neill

---

**14:15 - 14:40**

**Presentation Session: Refreshment break**

---

**14:40 - 15:00**

**Presentation Session: Keynote speech Prof. Jasmin Lam**

Chair: Christa Sys

Times of volatility - how to enhance resilience in shipping

"Times of volatility - how to enhance resilience in shipping". Jasmine Siu Lee Lam

---

**15:05 - 16:00**

**Presentation Session: Geopolitics and Port Security/Screening**

Chair: Theo Notteboom

"Caught in a Geopolitical Storm: Port Governance & Investment Screening in the EU". Floor Doppen

"Port competition from shipping lines' perspective: an application to Spanish ports using MDCEV model". Christina Myriouni

---

**15:05 - 16:00**

**Presentation Session: Port Decarbonization Strategies & Implementation**

Chair: Noemi Van Meir

"Towards port decarbonization: Main factors in choosing carbon reduction technologies from practical perspectives". Hui Zhuang

"Key Strategies and Barriers for Port Energy Transition: A Case Study of the Port of Barcelona". Maurici Hervas

"Digitalization and Decarbonization for Business and Environmentally Sustainable Ports". GUANGRONG ZOU

---

**15:05 - 16:00**

**Presentation Session: Maritime Cybersecurity Frameworks & Threats**

Chair: Stephen Rakoma

"Deceptive Waters: Leveraging Honeypots to Secure Maritime Infrastructure Against Advanced Cyber Threats". Cosimo Melella

"Implementing the European Cybersecurity Skills Framework (ECSF) for Maritime Cybersecurity Professionals Using a Human-Centric Approach". Kitty Kioskli

"Trustworthy AI in the maritime sector: Challenges and Proposals ". NIneta Polemi

---

**15:05 - 16:00**

**Presentation Session: Shipping Finance, Investment & Collusion**

Chair: THEODOROS SYRIOPOULOS

"Determinants of Capital Structure in Shipping Firms Under Varying Risk Conditions ".

Michael Tsatsaronis

"Does-wise investment boost firm values? ———Evidence from the shipping industry". zhao yaxin

"Hub-and-spoke collusion in port intelligence investment: A case study of Shanghai Port".

---

**16:00 - 16:30**

**Presentation Session: Refreshment break**

---

**16:30 - 17:45**

**Presentation Session: Port Resilience, Risk, & Climate Adaptation**

Chair: Katelyn Tahaney

"A Decision Support System to Enhance Port Resilience to Climate Change". Amalia

Polydoropoulou

"In Murky Waters. The impact of organized crime on the organizational resilience capability of ports.". Niels Vanlaer

"Research on Risk Management of Fresh Agricultural Products Supply Chain in Low Carbon Context".

"How does inland waterway transport respond to global disruptions? A connectivity assessment in the Rhine-Alpine Corridor". Felipe Bedoya-Maya

---

**16:30 - 17:45**

**Presentation Session: Green Corridors, Bunkering & Resilient Supply Chains**

Chair: Yulinda Tarigan

"Assessing green shipping corridor feasibility for feeder container lines in Ireland: potential and challenges". kamalakkannan sivappirakasam

"A Multi-Criteria Decision-Making framework for evaluating value creating factors in global green shipping corridors ". Jasmine Siu Lee Lam

"Targeting incentives to adopt wind-assisted technologies in shipping by agent-based simulations". Roberto Rivas Hermann

"Stakeholder perspectives on resilient supply chains for renewable maritime fuels". Johan Woxenius

---

**16:30 - 17:45**

**Presentation Session: Advanced Port Technologies & Automation**

Chair: Lorenzo Franchi

"Port Automation Going Forward: a Systematic Review". Obbie Hadrian

"Automating Ship Docking Operations with Robotic Arms: Concept and Simulations". Javier García Martín

"Performance comparison for encounter detection algorithms from large AIS datasets". Yigit Altan

---

**16:30 - 17:45**

**Presentation Session: Transport Policy, Economics & Measurement**

Chair: Adekola Oyenuga

"Regional commodity flow statistics; monitoring of the transition to a circular economy".

Chris de Blois

"Challenges in measuring the impact of national shipping policy in the Netherlands". Martijn

Van der Horst

"Stability of the relationship between economic indicators and waterborne freight

generation". Bas Turpijn

"Cost benefit analysis for maritime transport". Inge Vierth

---

**17:45 - 18:00**      **Presentation Session: Refreshment break**

---

**18:00 - 18:45**      **Presentation Session: Keynote speech Prof. Johan Woxenius**

Chair: Christa Sys

Port and the port city

"Port and the port city". Johan Woxenius

---

**19:15 - 20:15**      **Presentation Session: Walking reception**

Het Steen,  
<https://maps.app.goo.gl/32ZuEcH5K1vZn9z56>

**Fri, May 09 2025 CEST**

**09:00 - 10:15**      **Presentation Session: Port Development & Energy Transition Impacts (Case Studies)**

Chair: Jeffrey Willems

"Unlocking the Potential of Ports in Energy Value Chains". Michele Acciaro

"Reducing the Environmental Impact of Maritime Supply Chains". Daniel Mark Vitiello

"Impact of decarbonization promotion plan on land use in port area". Eizo Hideshima

"Industrial port landscape in times of energy transition. The case of Coronel and Bocamina I & II thermoelectric, Chile. ". Karolina A. Krośnicka

---



**09:00 - 10:15**

**Presentation Session: Maritime Service Quality, Human Factors & Cruise Experience**

Chair: Charilaos Christodoulou Raftis

"Nutrition as the basis for a healthy and productive work life onboard: Facts and ideals from different perspectives.". Pinar Özdemir

"Evaluating Customer Satisfaction with Clearing and Forwarding Agents: A SERVQUAL Approach with Application to Kuwait Shuwaikh Port". Ahmed Alsalfiti

"Development of Cruise Ferry Services in Europe: Industry Review and Demand Forecasting".  
GEORGIOS PAPAIOANNOU

---

**09:00 - 10:15**

**Presentation Session: Arctic Shipping Logistics & Cargo Potential**

Chair: Joost Hintjens

"Evaluating the Cargo Potential for International Transit Shipping via the Northeast Passage: A Trade Analysis Between Northwest Europe and Northeast Asia". Alina Kovalenko

"Route selection simulations on the global intermodal transport network considering Arctic shipping". Yuki Inoue

"Simulation modelling of transit container ship transportation with transshipment hubs via the Northeast Passage". Alina Kovalenko

"Coal phase out and implications on seaborne trade". Efthymios Roumpis

---

**09:00 - 10:15**

**Presentation Session: Port Operations Simulation & Management (Case Studies)**

Chair: Mandi Jiang

"Methods for the evaluation of factors affecting times of ships in container ports: a comparison of Gioia Tauro and Piraeus". giuseppe musolino

"Scenario evaluation for truck flow management at gates in a Free Port: The case study of the Port of Trieste". ALESSIA GROSSO

"The opportunities of simulation for the study of human factors in port logistics: some experiences involving quay cranes". Patrizia Serra

"The Expansion of Porto Itapoá and Its Effects on Logistics and Operational Efficiency in International Trade". Vanina Macowski Durski Silva

---

**10:15 - 10:40**

**Presentation Session: Refreshment break**

---

**10:40 - 11:00      Presentation Session: Keynote speech Prof. Simon Véronneau**

Chair: Edwin van Hassel

Strategic Competition and Nationalism

"Strategic Competition and Nationalism". Simon Veronneau

---

**11:05 - 12:00      Presentation Session: Port Efficiency, Regulation & Rail Connectivity**

Chair: Emma Ceulemans

"Efficiency and regulatory capture: evidence from seaport container terminals in the Indo-Pacific". Gideon Ponio

"PORT AND FREIGHT RAILWAYS RELATIONS: SOME EMPIRICAL EVIDENCE ON INDIRECT EFFECTS OF EFFICIENCY AND RECIPROCITY". Francisco Gildemir Ferreira da Silva

"Assessing Shipbuilding sustainability: the role of KPIs and Indicators". Alessio Tei

---

**11:05 - 12:00      Presentation Session: Alternative Propulsion & Energy Systems Evaluation**

Chair: SUE ZHAO

"A risk-propagation framework for vessel alternative power and energy systems selection modelling layout and lifecycle uncertainties". Apostolos Souflis - Rigas

"Port Emissions and sustainability indicators: a literature review". Stefano Ricci

"A multi criteria methodology to evaluate alternative solutions for the decarbonization of shipping". GEORGIOS REMOUNDOS

---

**11:05 - 12:00      Presentation Session: Safety & Risk in Container & EV Transport, Floating Terminals**

Chair: Wouter Schmidt

"Container Fire Accidents and Incidents on Container Ships: Global Practices and Trends". Olga Gotalay

"Safety risks and safety risk prevention in maritime transport of Electric Vehicles A case from Sweden ". Henrik Ringsberg

"Evolution and Current State of Floating Ports/Terminals: A Comprehensive Literature Review and Future Research Directions". Buddhi A. Weerasinghe

---

**11:05 - 12:00      Presentation Session: Data-Driven Logistics, Forecasting & Information Platforms**

Chair: Andrii Galkin

"Shipping Fuel Price Dynamics and Carbon-Driven Dependencies in key European bunkering hubs". Theano Krassa

"Usability Evaluation for an Educational Information Platform on Inland Navigation".

Alexandra Haller

"Unraveling the Spatial Agglomeration Patterns and Drivers of the Maritime Service Industry in the Yangtze River Delta: A Spatial Econometric Approach". Xingjian Wang

---

**12:00 - 13:00**

**Presentation Session: Lunch**

---

**13:00 - 14:15**

**Presentation Session: Port-City Dynamics, Social & Ethical Sustainability**

Chair: Yulinda Tarigan

"ESG practices and the port-city relationship: an inseparable relationship? ". Cassia Galvao

"Looking at Portuguese ports from a metabolistic perspective: a first approach". Rosário Macário

"Sustainability ethical footprint for ports: methodology framework and outputs". Dimitrios Dimitriou

"Enhancing ports sustainable performance through societal inclusion: towards a social port indicator". Petros Pallis, Charalampos Platias

---

**13:00 - 14:15**

**Presentation Session: Liner Shipping Connectivity, Vulnerabilities & Crisis Impacts**

Chair: Felipe Bedoya-Maya

"Margins for regulating the successive Cs of the liner market: policy for critical infrastructure at a critical turning point for Europe". Helen THANOPOULOU

"From monopoly to market? Examining the European rail connections of European ports after three decades of liberalization". David Guerrero

"Modelling Container Transshipment Throughput and Analysing Dynamics During Significant External Events: A Case Study of the Port of Busan and the China-to-U.S. Trade Route". Ki-moon Jang

"Winners and losers: the impact of the Suez Canal crisis on Italian ports". Claudio Ferrari

---

**13:00 - 14:15**      **Presentation Session: Innovation Processes & Adoption in the Maritime Sector**  
Chair: Lorenzo Franchi  
"Redefining innovation in the maritime industry". Michele Acciaro, Vangelis Tsioumas  
"The development of an assessment model for green port innovations". Jeffrey Willems  
"Port Governance and Sustainability: A New Framework for Innovation and Co-creation of Growth". Mahinda Yapa  
"TECHNOLOGY ADOPTION IN MARITIME ECOSYSTEM: DISCRETE CHOICE ANALYSIS INVESTIGATION ON RELATIONAL DETERMINANTS INFLUENCING DECISIONS". Lorenzo Franchi

---

**13:00 - 14:15**      **Presentation Session: African Ports, Corridors & Service Providers**  
Chair: Adekola Oyenuga  
"Transport Modelling for the Aegean Archipelagos: Towards Efficient, Resilient and Passenger-Oriented Maritime Transport for Small Islands". GEORGIOS PAPAIOANNOU  
"Ship service providers in Africa: A state-of-the-art review and SWOT analysis". Omnia Allam  
"Exploring the potential of the Lobito Corridor and port for the transportation of containerized cargo". Tiago Santos  
"The geopolitical context of terminal investments in African ports: A comparative Analysis of Chinese and European Roles". Jonas Aryee

---

**14:15 - 14:45**      **Presentation Session: Refreshment break**

---

**14:45 - 16:30**      **Presentation Session: Charging & Energy Infrastructure for Transport**  
Chair: Noemi Van Meir  
"PortGRID - Port Grid for Resilience, Integration of sustainable energy and Dynamic energy management". Tino Buschmann  
"Economic Impacts of the Electric Road System Implementation on Rotterdam-Antwerp Corridor". Raimonds Aronietis  
"Offshore Charging Buoy Energy Requirement Estimation for Vessels at Anchor in European Waters". Roy de Winter  
"A strategy for accelerating green bunkering and charging in ports". Elin Malmgren

---

**14:45 - 16:30**

**Presentation Session: IWT & Freight Logistics: Shipper Needs & Sychromodality**

Chair: Marie Cryns

"River Marine Transport Model using an Integrated General Systems Framework: an application to Hudson River". Michael Izdebski

"EXPLORING FACTORS INFLUENCING SUPPLY CHAIN ACTORS' DECISIONS TO ENABLE SYNCHROMODALITY". Mylena Cristine Rodrigues de Jesus

"Requirements from shippers for expanding the use of the Danube as a transportation route in freight logistics". Laura Hörandner

"Joint Corridors Off-Road, a National Living Lab Approach". Ron van Duin

"Research on the Evaluation of Marine Talent Development in China's Coastal Areas".

---

**14:45 - 16:30**

**Presentation Session: Port Competition, Attractiveness & Automotive Logistics**

Chair: Theo Notteboom

"Conceptual Port Business Process Management Maturity Model (BP3M)". PERIKLIS SARAGIOTIS

"Waterborne Competitiveness: US and Foreign Investments in Inland Waterways and the Relationship to Deep Water Ports". Thomas O'Brien

"The role of ports in the reorganisation process of the automotive supply chain". Claudio Ferrari

"Evaluating The Importance of Port-Centric Strategies for Promoting Sustainability at Dublin Port". Mehrdad Behforouzi

"The Red Sea crisis on shipping disruption and impact on container port calls". WEI YIM YAP

---

**14:45 - 16:30**

**Presentation Session: Digitalization and Optimization in Maritime Logistics and Security**

Chair: Dimitrios Georgoudakis

"Improving the Visibility of Waterway Events Influencing Traffic along the Rhine, Main, and Danube". Juan Manuel Pulido Guzman

"ICT and structural factors affecting ship times in container ports: experimental analysis at country level". giuseppe musolino

"A digital twin platform effecting shipping decarbonization with tranformer models". Maria Lambrou

"Marine Logistics Security in South Asia: A Prospective Collaboration for Economic development of the Global South with Europe". Dr.Anurag Hazarika

"Leveraging Soft-Sensing in Port Planning: A Framework for Enhancing Port Cooperation".  
Francescalberto De Bari

---

**16:30 - 17:30**      **Presentation Session: Closing reception**

---